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ABSTRACT

This paper describes the psychology laboratory at Nebraska Wesleyan University and the efforts of the small department which participated in the design and development process. The lab consists of 26 rooms, mostly small cubicles, and covers approximately 3,800 square feet. Each area of the lab is described in terms of its design and function. Major areas of the lab are: (1) general purpose cubicles; (2) independent research cubicles; (3) the perception lab; (4) the animal surgery and histology lab; (5) the sleep lab; (6) the social psychology lab; (7) the operant conditioning lab; (8) the pigeon vivarium; and (9) miscellaneous support rooms (the animal colony, the audio-visual room, the workshop, and the main classroom). Problems with the lab are pointed out including lack of storage space and noise. Suggestions to others who may be contemplating the building of a psychology laboratory are also discussed. A map of the facility is included. (AG)

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DESIGNING THE PSYCHOLOGY LABORATORIES AT
NEBRASKA WESLEYAN UNIVERSITY

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Paper presented at the Annual Convention of the American Psychological
Association, Washington, DC, August 23-27, 1982.

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The Nebraska Wesleyan Psychology Laboratory¹

Clifford L. Fawl
Nebraska Wesleyan University

The purpose of this paper is to describe the psychology laboratory at Nebraska Wesleyan University, its design and development, in the hope that other undergraduate colleges might profit from our experience. Our own laboratory was built in 1974 and opened for use in January of 1975. Fortunately for us, we had the advantage of designing a laboratory for a new building rather than remodeling already existing space. The laboratory contains 26 rooms, mostly small cubicles, and covers approximately 3,800 square feet.

Ours is a 5-person department (4 persons at the time the lab was built) in a liberal arts college of 1100 students. We graduate approximately 20 psychology majors a year, a figure which includes two interdepartmental majors with a strong emphasis in psychology. (COMMENT) Our emphasis upon research experience as a requisite part of undergraduate study commenced well in advance of the construction of the laboratory I am to describe here. Since 1961 all psychology majors have been required to conduct an independent empirical investigation (usually an experiment) during their Senior year. I note this because it may well have been influential with the college administration in supporting our proposal for a new laboratory: in effect, they were in the position of enhancing a research-oriented curriculum already in existence rather than having to take a promissory note that such a program would be implemented if a new lab were provided.

We now offer 23 standard courses in psychology (in addition to Special Projects, Directed Readings, et cetera), six of which have a laboratory as an integral part of the course. These include Perception, Learning and Motivation, Experimental Psychology, Sleep and Dreaming, Animal Behavior, and Physiological

¹Delivered at the American Psychological Association Convention, Washington, D.C., August 26, 1982, Symposium on "Undergraduate Laboratories in Psychology."

Psychology. Many other courses in the department (e.g., Social Psychology) make occasional use of the laboratory facilities. In addition to class use, the facilities are utilized for independent student research (the Senior projects to which I referred earlier) and faculty research. Of the three major types of laboratory use, faculty research is the least, so ours is a laboratory primarily for student use.

Slide 1 shows the overall floor plan of the lab. Several major segments may be identified: the General Purpose cubicles, the Independent Research cubicles, the Perception Laboratory, the Animal Surgery and Histology Lab, the Sleep Lab, the Social Psychology Lab, the Operant Conditioning Lab, the Pigeon Vivarium, and the miscellaneous support rooms -- the animal colony, the audio-visual room, the workshop, and the main classroom (which also doubles as a laboratory room for several of the classes).

Let us start our tour with the General Purpose area. This is a set of six cubicles that come off the main classroom. They are used primarily as lab rooms in conjunction with the Learning and Motivation course, at which time a Skinner Box is included in each room and the Experimental Psychology course. (COMMENT) A removable wooden panel, 3' x 3', is placed in each wall separating adjacent cubicles. (COMMENT) Also, a small blank conduit box is in the wall separating adjacent rooms, thus permitting easy wiring from one cubicle to the next. (COMMENT)

The four Independent Research cubicles are adjacent to the Social Psych Lab and were originally designed to be a part of that lab, but in practice these four cubicles have been used for a wide variety of Senior research projects which use one human subject at a time. (COMMENT) As with the General Purpose cubicles, these rooms are very small (inside dimensions of 7' x 7'), but they do provide

the privacy often necessitated by psychological research. Again, as with the General Purpose cubicles, blank conduit boxes are in the walls separating adjacent rooms, but unlike the General Purpose rooms, the Independent Research cubicles have one-way mirrors instead of wooden panels in the walls between cubicles, and also in the wall between the cubicle and the control room of the Social Psych Lab. These mirrors are the same size as the removable panels and are so designed that the mirrors and wooden panels can be interchanged. (COMMENT)

At the outset we had planned for four additional Independent Research cubicles. The fact that we were able to easily convert them to other, more specific, functions illustrates the flexibility we included in our laboratory design. For example, two rooms were converted into a small Operant Conditioning Lab, with a programmable equipment rack in one cubicle and two subject boxes (one for pigeons and one for rats) in the adjacent room. Since we had a blank conduit box available, wiring from one room to the other was no problem. Two other rooms were made into a small Animal Behavior Lab. We added a liner to the interior of one room so that it could serve as a pigeon vivarium for five or six birds. The adjacent room could be used as an observation room for the vivarium by replacing the wooden panel between the rooms with a one-way vision mirror.

Even more recently the observation room has come to double as a housing for fish tanks. Students maintain records of fish behavior in the Animal Behavior course.

The Perception Lab was designed as our longest room in the interest of depth perception studies. Its size (12' x 30') has served to advantage for a variety of other purposes as well, some of which having nothing to do with perception and not originally considered for this room. For example, it has served as a classroom for small groups, and it has functioned as a research

space for miscellaneous student studies that require a larger area than allowed for in the small cubicles. Another useful feature has been the kitchen-type storage cabinets that provide both storage and a counter top work space, as shown in the next slide. (COMMENT) This room is also designed as a dark room, a feature which is made possible by a light seal that automatically drops down from the bottom of the door when the door is closed. The room is serviced by incandescent lights on dimmer switches, which provide light control; unfortunately, however, the lights are recessed in the ceiling, which results in uneven lumination for the room.

Our Animal Surgery and Histology room is one of the most active areas of our laboratory. It is used during the first semester primarily by Senior Biopsychology majors who are conducting their independent research. (COMMENT) In the second semester, students in the Physiological Psychology class get training in stereotaxic surgery and histology here. The room is equipped with a small surgery table, a gas hood, and a sink. It is serviced by non-arcing electrical outlets for safety purposes. This lab also has the kitchen-type storage and work space noted in the Perception Lab. Given the great amount of usage that this room receives it would have been nicer were it larger than its interior dimensions of 10' x 12', but it nevertheless has served us well.

A sleep lab is quite unusual for an undergraduate college, yet we have one and I am pleased to say that it has been put to good use. Every year one or more Senior research project utilizes this facility. Recently one of these Senior studies, conducted by Mary Spiers, won first prize nationally in the 1981 Psi Chi student research competition. In addition, faculty research and even clinical diagnostic examinations for sleep disorders have been studied here. Recently a course on the Psychology of Sleep and Dreaming was added to the

curriculum, and, as might be expected, this lab is used for that course.

The two sleep chambers shown in the floor plan of Slide 1 were initially part of the General Purpose area rather than the Sleep Lab. (COMMENT) The incorporation of these two cubicles was made possible not only by their proximity to the Sleep Lab, but also because we had allowed for removable panels in the walls separating these rooms from the Sleep Lab, which meant that we could replace these panels with the windows and wiring that you see pictured in the slide. Incidentally, the control room is electrically shielded, which is probably an unnecessary expense now in that most laboratory equipment for sleep has adequate filters.

The Social Psychology Lab is a complex of rooms: a control room, two rooms for small groups, and four cubicles for individual subjects (previously identified as Independent Research cubicles).

From the control room it is possible to sound record from, and to verbally communicate with, each of the six subject rooms. Between each pair of adjacent rooms is a one-way vision mirror, as shown in the slide.

The two group rooms get multiple-purpose usage because of their size. Currently, one of these rooms is housing a water immersion tank that is being used for student and faculty research on sensory deprivation.

(COMMENT re: lack of social studies and re: the deprivation studies)

Since there already was one animal colony on campus (in the Biology Department) at the time our building was under consideration, the college administration understandably was reluctant to provide for a second colony, yet one was essential for our program. Fortunately, an accommodation was reached and we did obtain space, though less than desirable.

The Animal Colony contains housing racks for both pigeons and rats. It also has a sink. The lighting is on a timer which provides for a light and dark cycle. (COMMENT)

A small shop room (not shown on the floor plan or in a slide) is across the hall from the laboratory and next to the freight elevator. It is equipped with a work bench, a sink, and storage cabinets. It is serviced with hand tools and provides for only minor equipment construction and repair, yet is a very useful area. Such a room is highly recommended in the design of a psychology laboratory, even where other facilities of superior capabilities are available elsewhere on campus, as is the case at our own college.

Our audio-visual storage area is centrally located, and has direct access to the classroom. With the addition of a videotape recorder and monitor, floor space has become crowded; the room ideally would be twice as large as its present dimensions. Again, a kitchen-type storage and work surface have worked well here, as well as the floor-to-ceiling cabinets used to store lab equipment.

Finally, we include our main classroom in our description of the Psychology Laboratory because it is used as a lab for some classes. That is the reason for the tables you see in the slide rather than writing chairs, unlike the other classrooms in the building. These tables can be used as lab tables for Experimental Psych, Learning and Motivation, and Physiological Psychology. When more secluded space is needed in these lab courses, students can be transferred to the General Purpose research cubicles, which are through the door at the left in the slide. This free flow between the larger room and small cubicles is a very useful feature. The main entrance to the classroom is from the rear of the room, which means that the room has access from both the front and the rear, a feature which we would recommend. (COMMENT) One feature which we should have included, but did not, is incandescent lighting. (COMMENT)

This, then, completes a quick tour of the Nebraska Wesleyan Psychology

Laboratory. What would we do differently if we were to do it over? Well, for one thing, more storage space would be planned. A lab is like a house: you never seem to allow for enough storage space. Another problem has been noise. The research rooms are carpeted so as to cut down on noise, but noise between adjacent rooms has been troublesome for some studies, especially in the Social Psychology Lab. Filling the walls with sound insulation would have helped. Also, we wish now that we had used incandescent lighting for all of the labs since light control is often a desirable feature. We have it in the Sleep Lab, the control room of the Social Psych Lab, and the Perception Lab, but we could have used it in the other rooms as well, including the classroom.

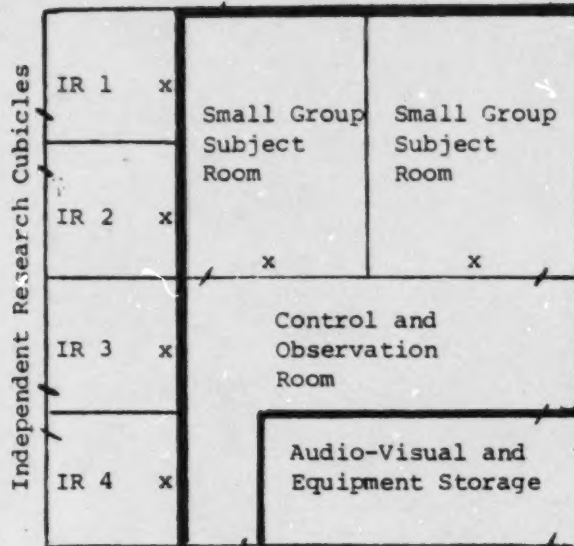
All in all, I would have to say that we are immensely pleased with how well the lab design has worked out. Further, we are gratified by the heavy usage it has received. (COMMENT) Probably the features which we have found most valuable include the flexibility in design of the General Purpose rooms (COMMENT); the large number of rooms (made possible by having mostly very small cubicles); and the arrangement of rooms in such a way as facilitate traffic flow, and, in the case of the Social Psych Lab and the main classroom, access to the room from different sides. (COMMENT)

There are two general suggestions which I would pass on to those of you who might be contemplating the building of a psychology laboratory. One is to think in terms of functions of space, not the shape of space. Architects can be most helpful to you if you have a clear notion of how you want to use the space. They, then, can arrange that space more effectively, for that is their realm of expertise. Fortunately we learned this early in the game, and I believe that it contributed substantially to the fact that we seem to have gotten the maximum use of the space which we were allotted. (COMMENT) Secondly, I would advise you to start your

planning early, literally years before construction commences (seven years prior to construction in our case). An early start is important because the task is difficult and many revisions will be needed. It is also important for political reasons to get your oar into the water before overall plans for the building have become set. I would guess that the fact that we had specific and detailed plans for what we wanted to do with a laboratory, and that we got them in early because we had done a lot of prior planning, were instrumental to our receiving the generous allocation of space and facilities that we did receive. (COMMENT)

Finally, I should like to note that some 15 years ago, when I first started to think about a new psychology lab, I sought in vain for guidance from APA. No guidelines, no illustrations were available. Through APA we were successful in getting to campus two NSF Visiting Scientists (Bill Jaynes from Oklahoma State in 1969 and Greg Kimble, then of Colorado, in 1973), and it was very helpful to obtain their response to the plans we were developing. But nothing from APA itself. I see this symposium as a move in the right direction, and I salute Dr. Benjamin for organizing it. Hopefully, by way of illustration, it will give you some direction in the construction of your own laboratory.

Social Psychology Lab.



NEBRASKA WESLEYAN UNIVERSITY

Psychology Laboratories

Key:

x - One-way Vision Mirror

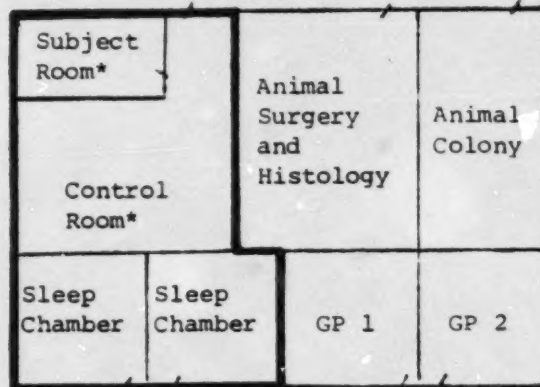
* - Electrically Shielded Room

IR - Independent Research

GP - General Purpose

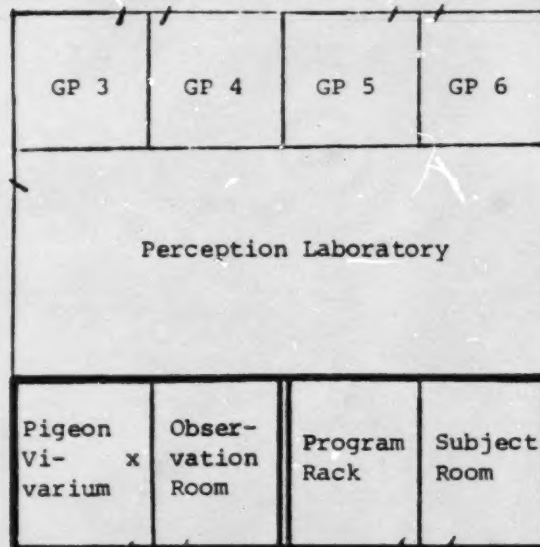
/ - Door

Sleep Lab.



Classroom/Laboratory

General Purpose Cubicles



Scale: 0.1 inch = 1 foot

Animal Behavior Operant Lab.

↓ Workshop